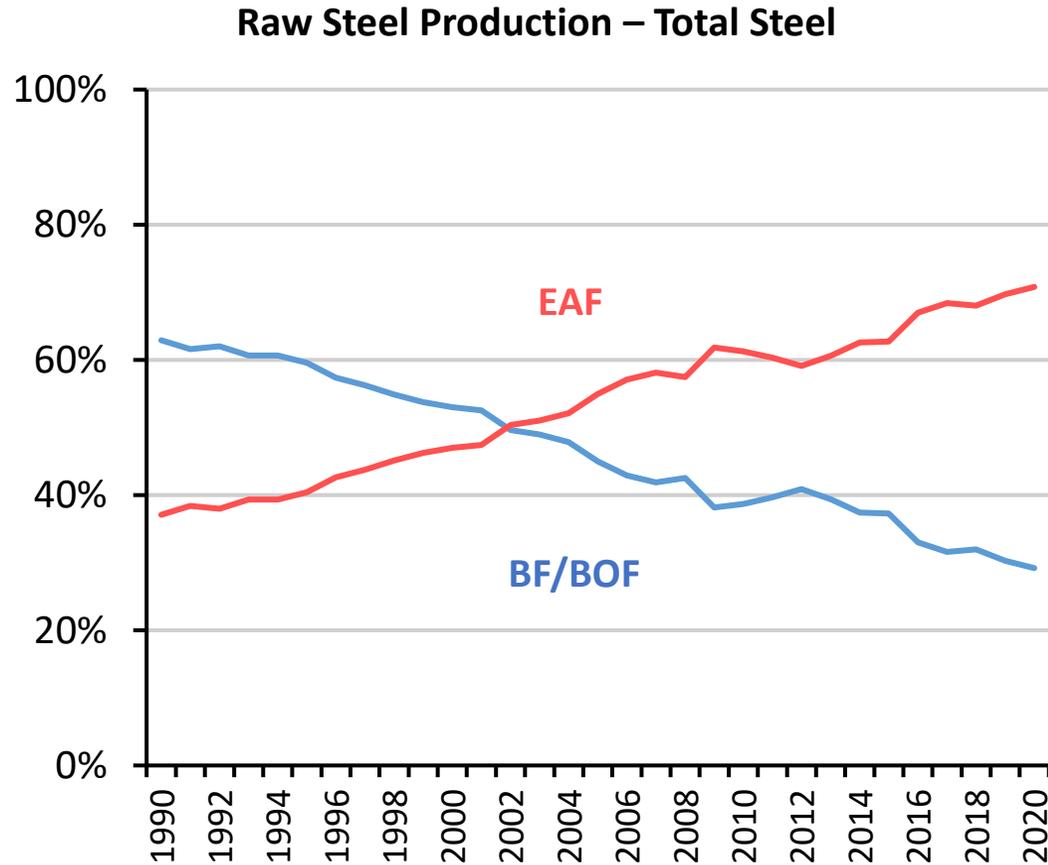




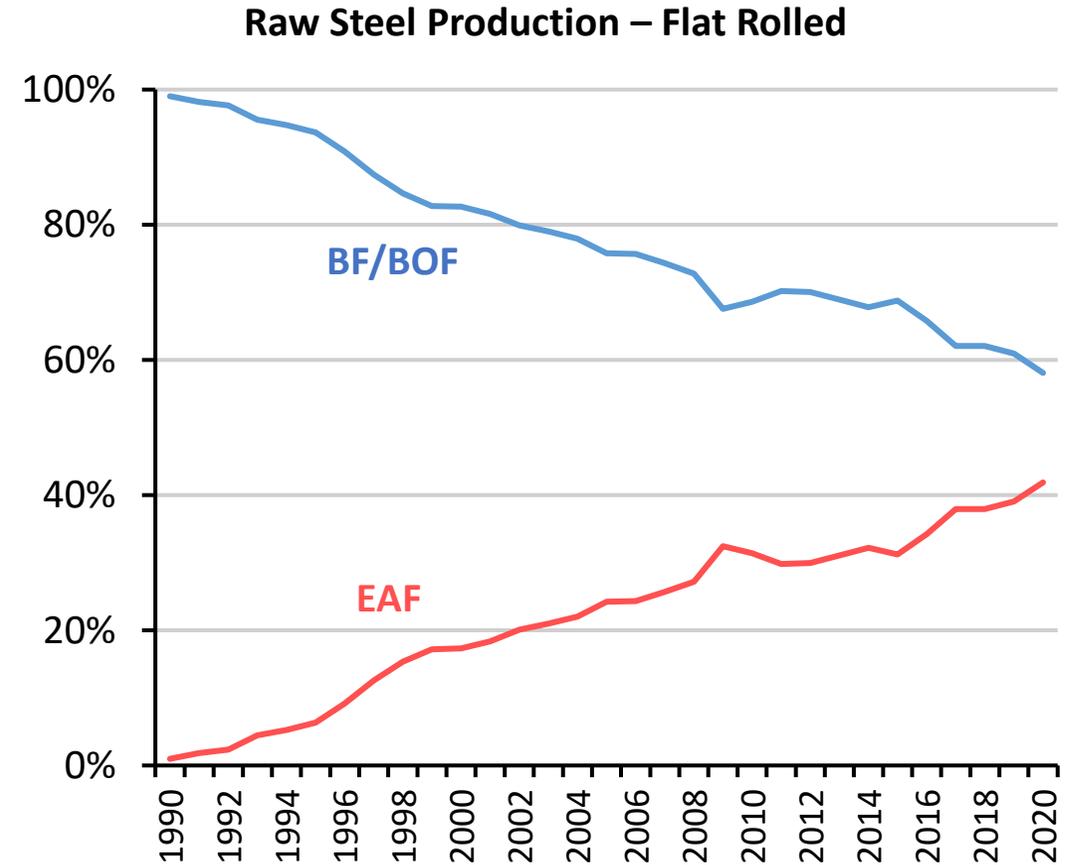
# Prime Scrap – The Next Precious Metal?

Presented by Paul Lowrey  
Steel Research Associates, LLC  
SMU Steel Summit 2021 – Atlanta, GA  
August 23-25, 2021

# EAF share of raw steel production continues to grow



Source: AISI



Source: Company reports, SRA analysis & estimates

# There are four major sources of scrap

## Home Scrap



- Steel mill operations
- Efficient technologies reducing availability

## Prompt Scrap



- By-product of manufacturing
- Availability limited by steel consumption

## Obsolete Scrap



- Retired steel intensive goods
- Large reservoir to be recovered

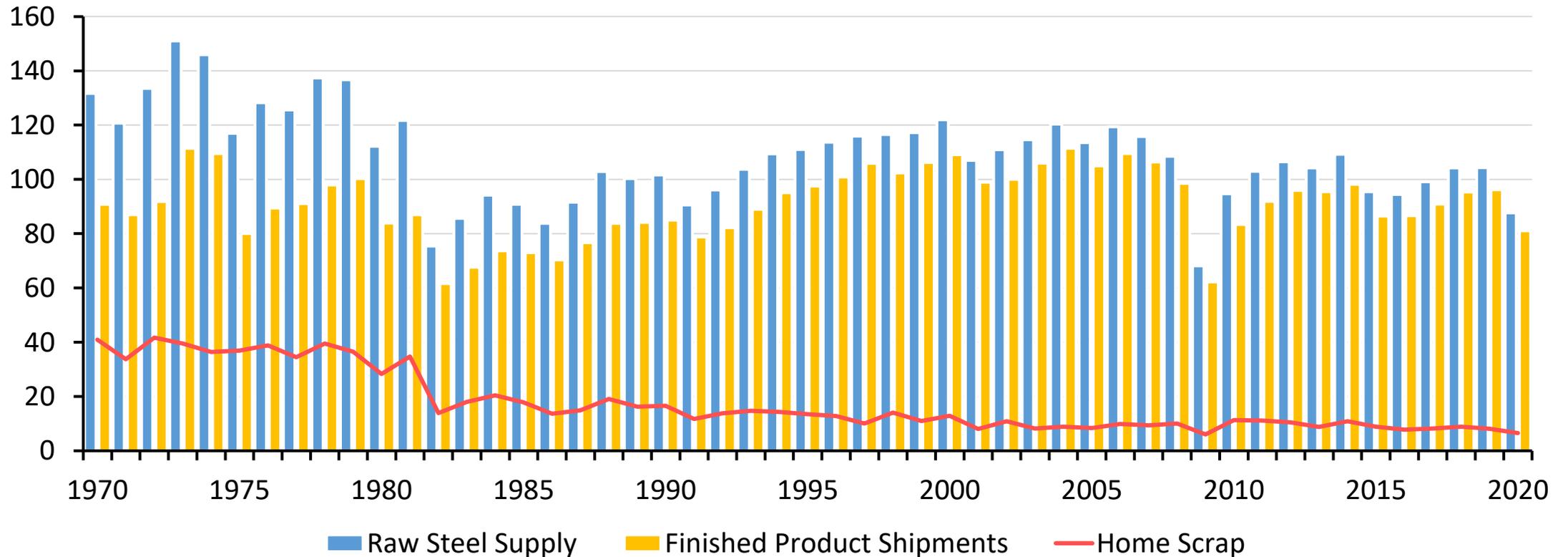
## Scrap Substitutes



- Pig iron
- DRI/HBI

# Home scrap generated has dropped 75% in the last 50 years

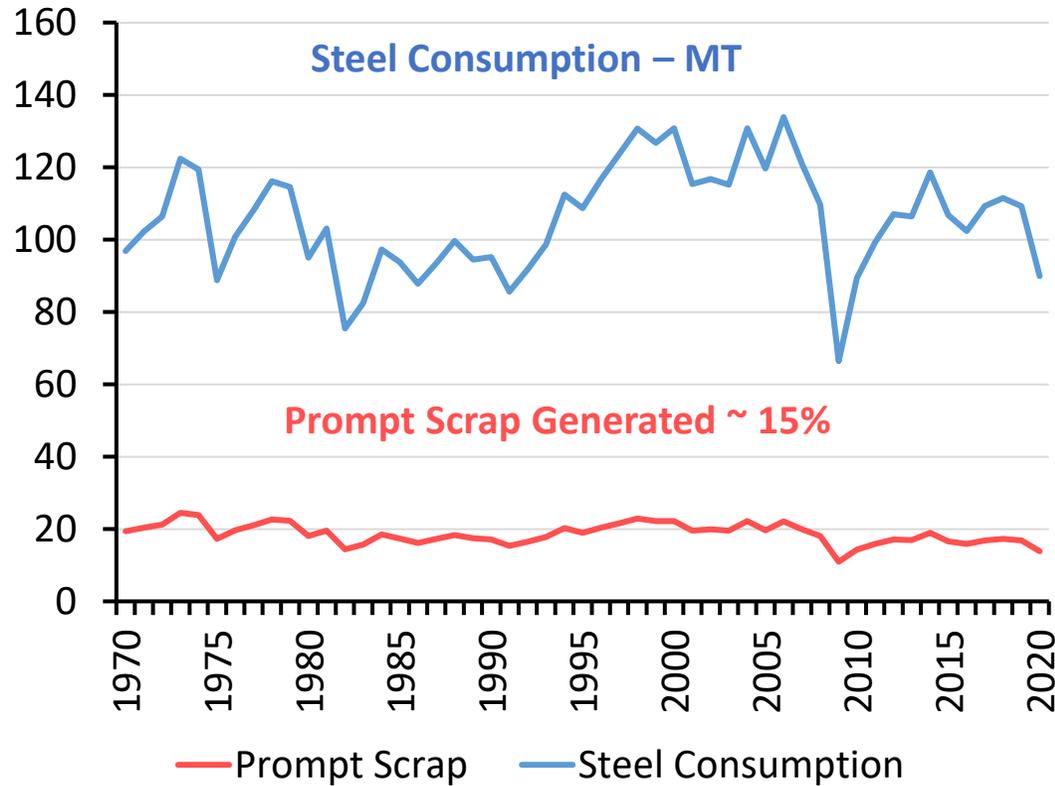
## Home Scrap From Steel Mills – MT



Sources: AISI, SRA analysis & estimates

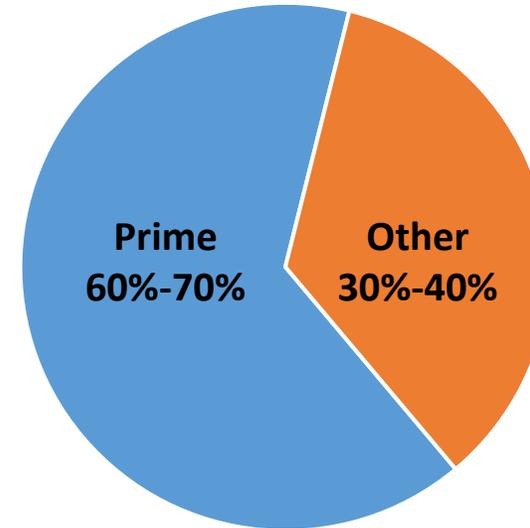
# Not all prompt scrap is prime scrap

### Prompt Scrap is Capped by Steel Consumption



Source: SRA estimates

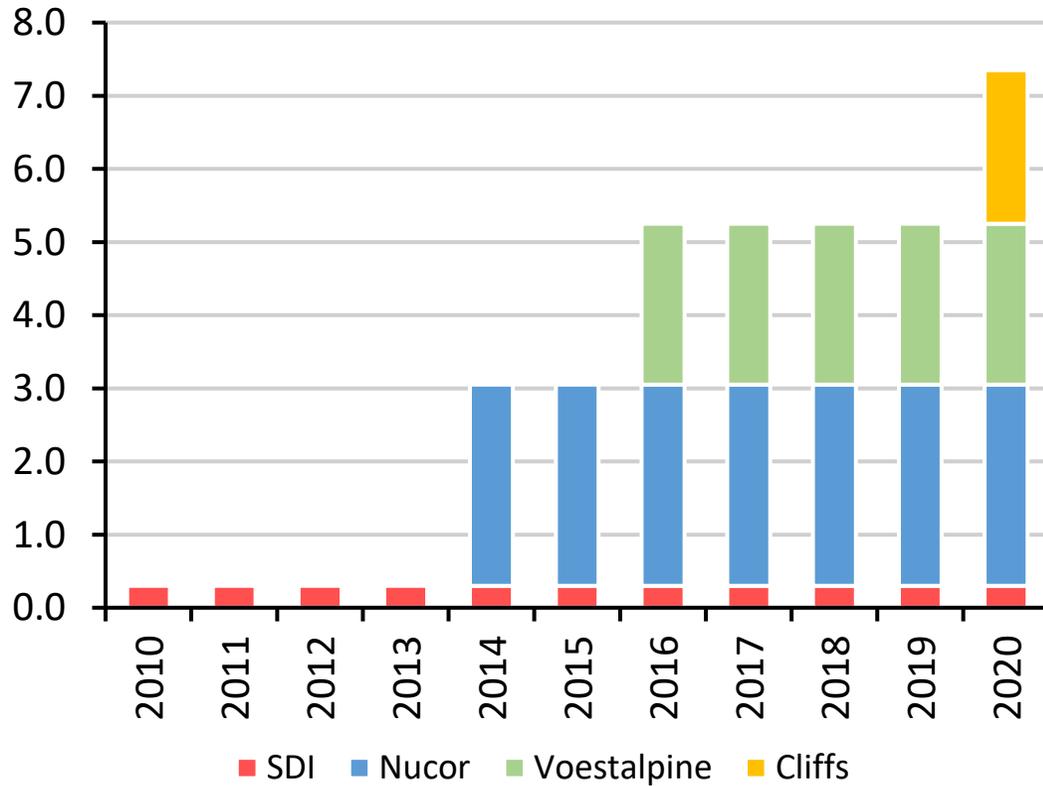
### Est. Prompt Scrap Breakdown



- Prime scrap estimate based on
  - Flat rolled 50% - 60%
  - Other 10% - 20% (some SBQ, Plate, Rod)

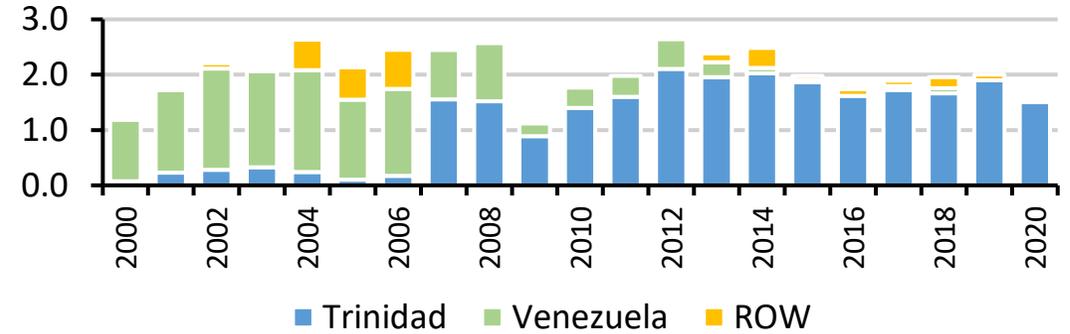
# Domestic substitute production is growing, imports are not

**Domestic DRI/HBI Capacity is Growing**

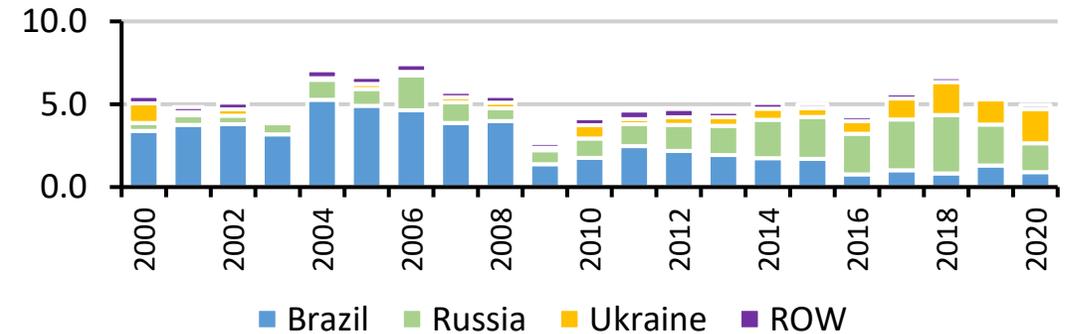


Sources: Company reports & Midrex

**DRI/HBI Imports are Not Growing**



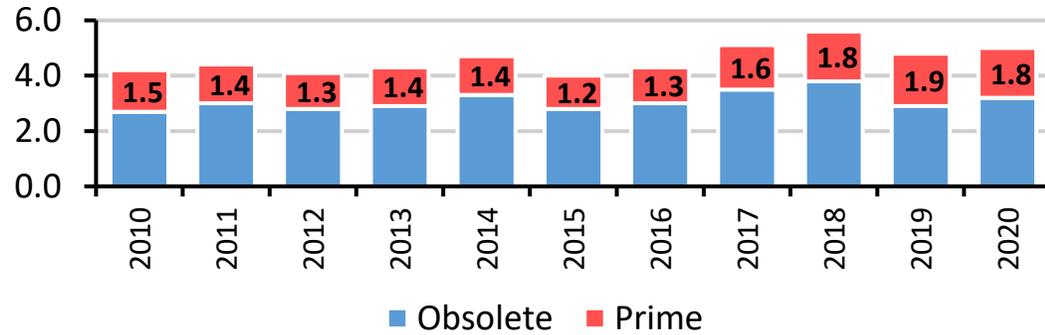
**Pig Iron Imports are Not Growing**



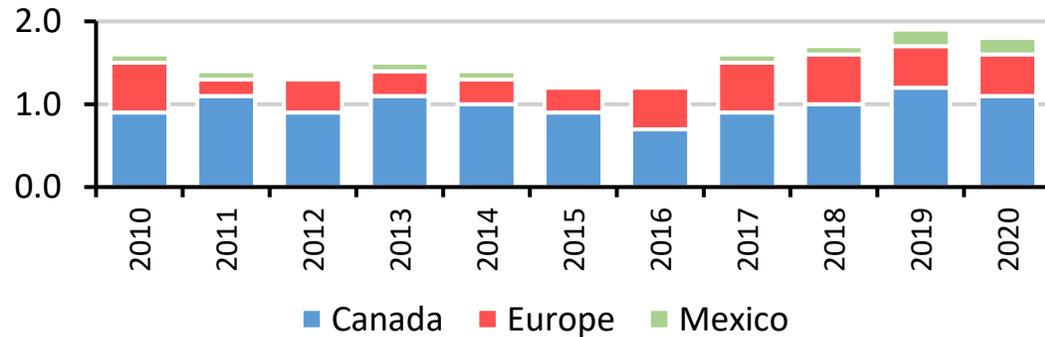
Source: AISI

# Scrap imports & exports are significant

### Imports of Prime Scrap are Growing

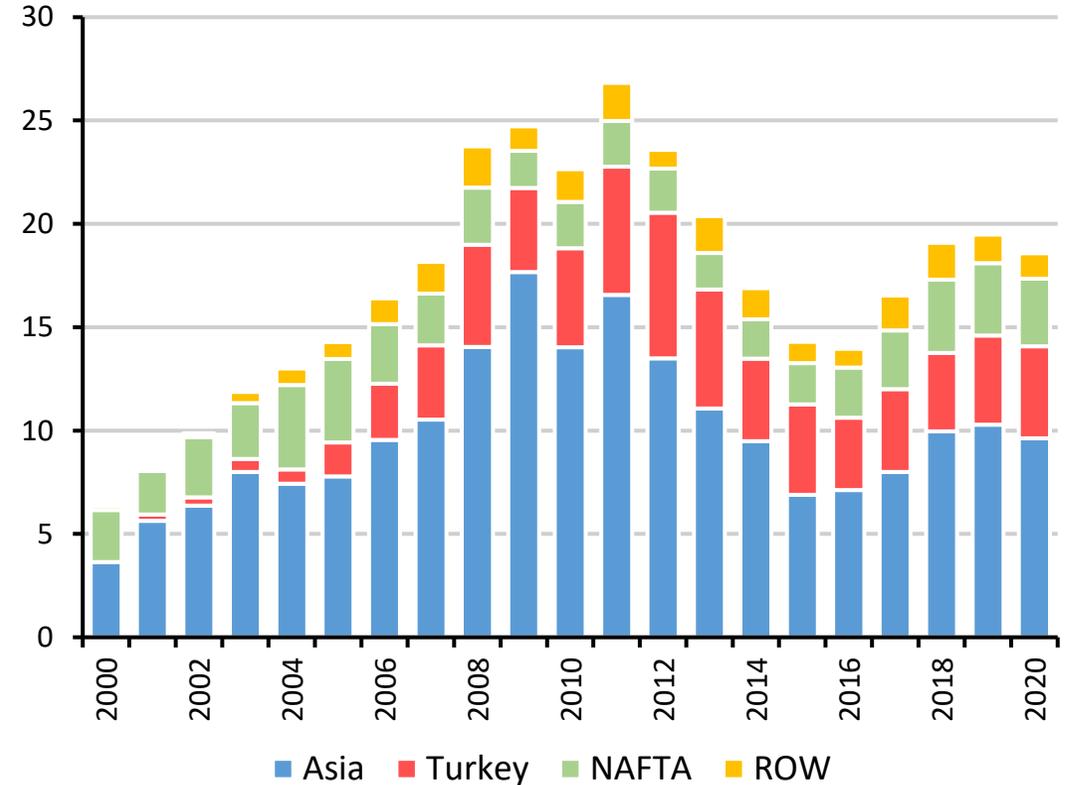


### Canada & Europe are Major Source of Prime



Source: AISI

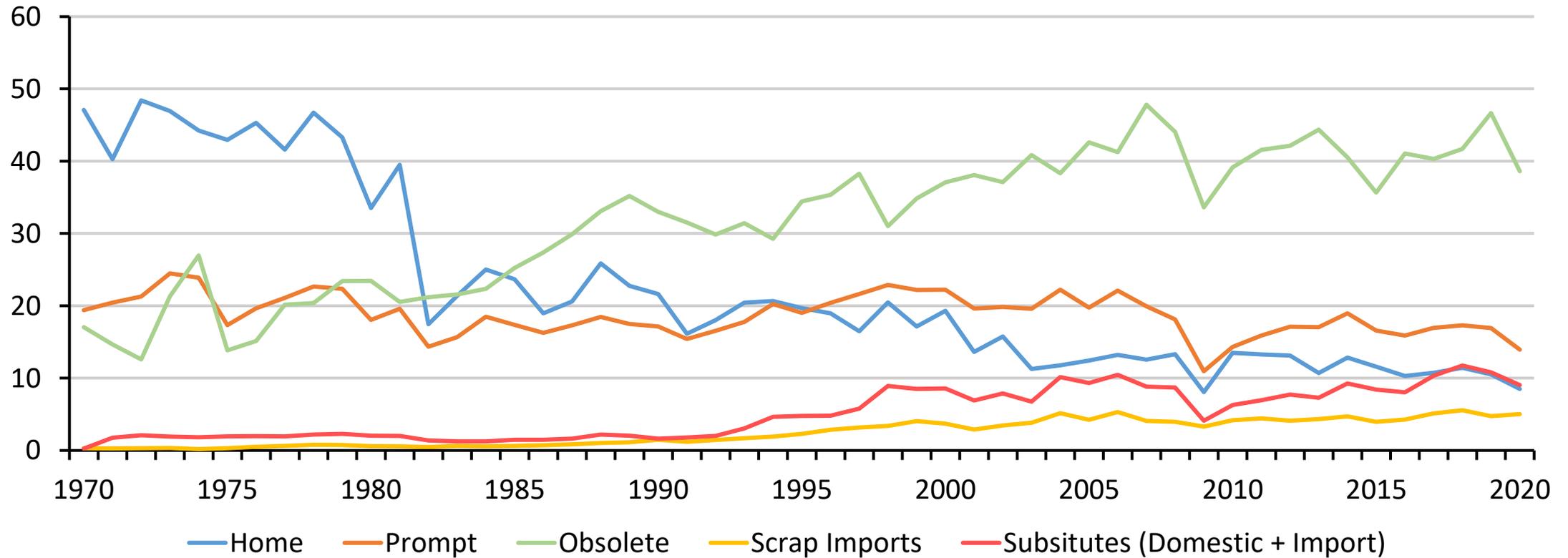
### Scrap Exports are Virtually All Obsolete Grades



Source: AISI

# Obsolete scrap is roughly 50% of scrap & substitutes consumed

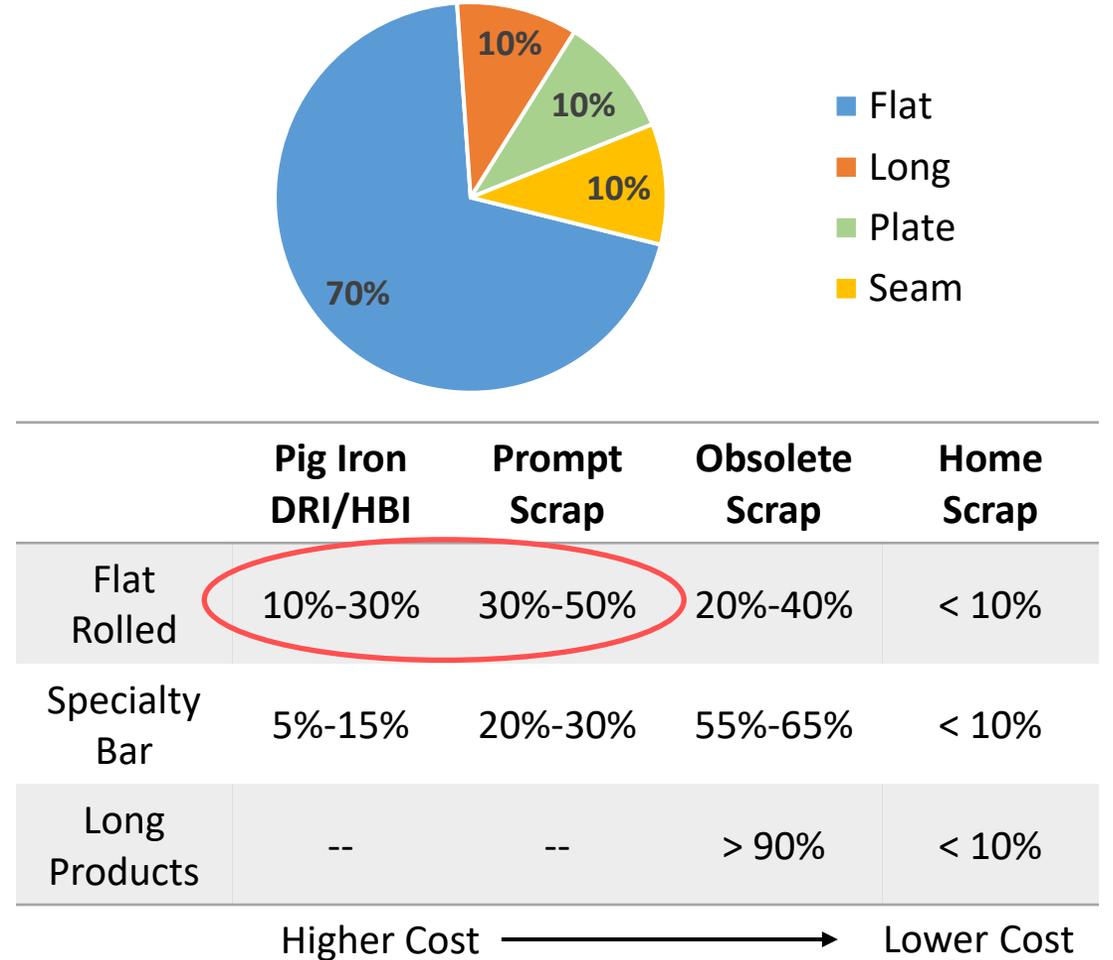
## Domestic Scrap & Substitutes Consumed – MT



Source: SRA scrap model

# 12.3 MT of new EAF capacity is on the way

Company	Capacity MT	Product Type	Start Up
Nucor – MO	0.35	Rebar	Q2 2020
USS – AL	1.50	Seamless	Q4 2020
Nucor – FL	0.35	Rebar	Late 2020
BRS – AR	1.60	Flat Roll	Late 2020
Nucor – KY	1.40	Flat Roll	Q4 2021
SDI – TX	3.00	Flat Roll	Q4 2021
NSBSL – OH	0.90	Flat Roll	Q1 2022
Nucor – KY	1.20	Plate	Late 2022
CMC-AZ	0.50	Long	Early 2023
AM/NS	1.50	Flat Roll	1H-2023
<b>Total New</b>	<b>12.30</b>		

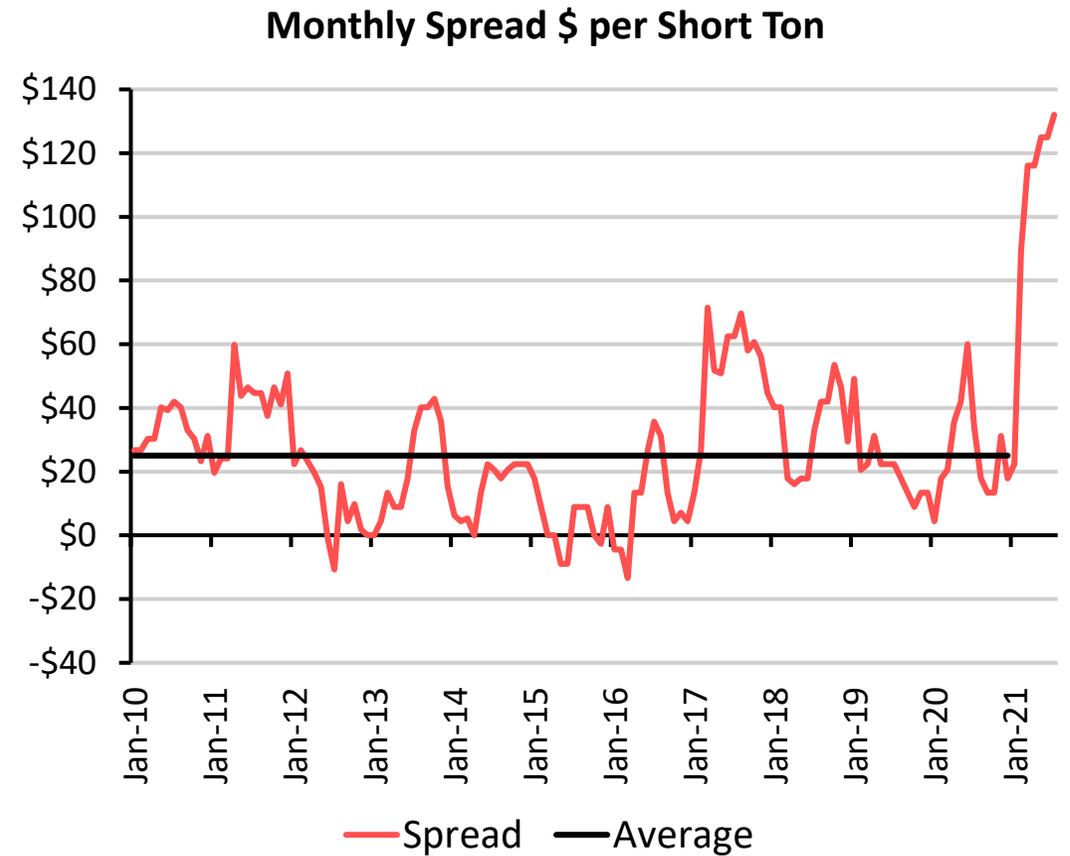
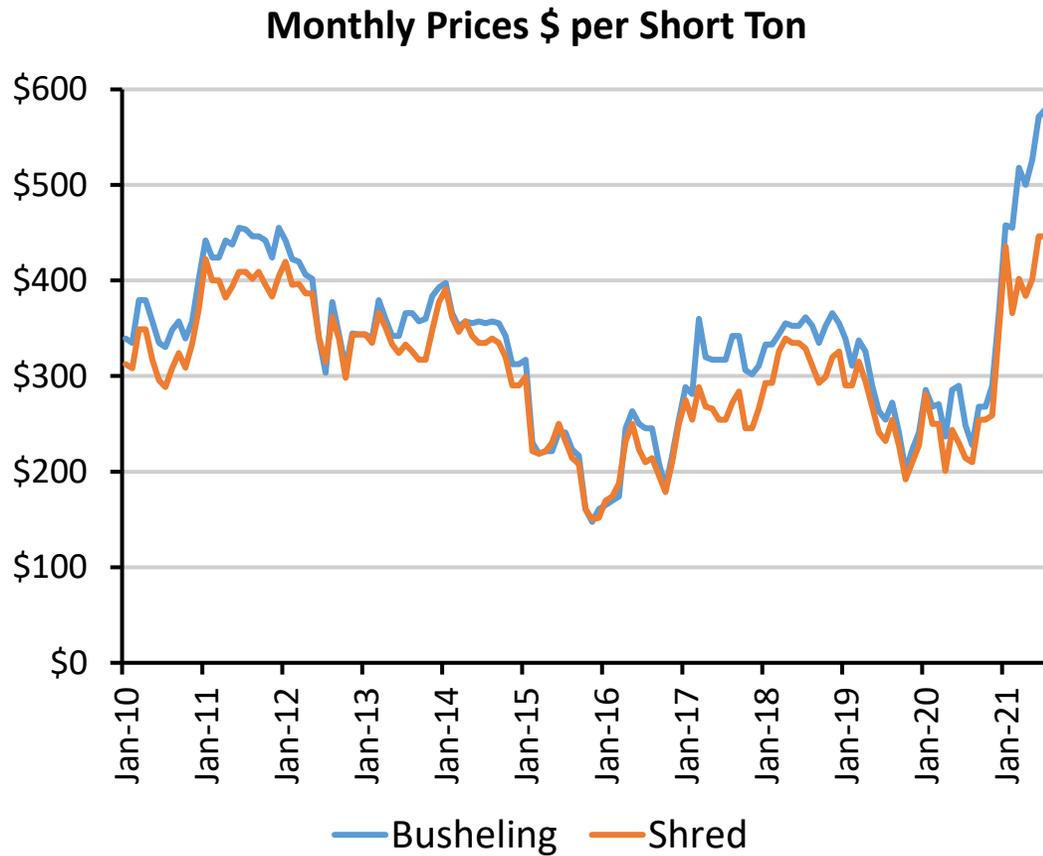


Source: Company announcements

# What are the concerns about prime scrap?

- New flat rolled capacity requires high-quality metallics
- No new domestic prime supply
- Prime imports could be curtailed
  - Algoma EAF
  - European green steel movement
- Limited merchant market for DRI/HBI
  - Cliffs move to consume internally
  - AM Dofasco to consume production internally
  - Virtually all imports captive to Nucor from Trinidad
- Limited sources of pig iron
  - Stelco has limited availability based on internal needs
  - Russia imposing a temporary export tax

# Prime to obsolete spread has widened to \$125/ton



Source: SMU (data through July 2021)

# Prime scrap – the next precious metal?

- Restricting exports does not provide high-quality metallics
  - < 2% prime
  - About 30% shredded (low quality)
  - Most of the rest is better suited for long product EAF's
- Higher prices will incentivize higher quality shredded (lowering the copper content)
- More domestic DRI/HBI investment
- More domestic pig iron?
  - Blast furnace producers looking to reduce carbon footprint
  - Will producers sell high-quality raw materials to their competitors?
- China to the rescue?
  - Don't count on it
  - Could hoard scrap for its own future consumption

